



TITLE:

<NOTE>Grooming Hand Clasp by Chimpanzees (*Pan troglodytes schweinfurthii*) in the Issa Valley, Western Tanzania

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Figure 1. Mr. Nemoto laughs with Tongwe friends from Mahale (Photo: H. Sakuragi).

anniversary event of Mahale Mountains Chimpanzee Research Project held in Kigoma on the 26th of November 2015 (Figure 1).

Mr. Nemoto's major was history. After graduating from the Division of History, Faculty of Letters, Kyoto University, he spent 6 years teaching at a high school in Ichikawa, Japan. Then, he moved to Tanzania in 1984 to study African history at the University of Dar es Salaam. His determination originated in his involvement in a Japan-based anti-apartheid movement and his first journey to East Africa as an undergraduate student in 1975 (Nemoto 2011). He made friends with primatologists from Japan including the late Professor Toshisada Nishida. I met Mr. Nemoto for the first time in August 1991 when he taught at Dar es Salaam Japanese Class. Since then, there have been many cases in which I had to solicit his advice to escape from various difficulties I faced while travelling in Tanzania. The Mahale Team's reliance on him grew after he visited Mahale for the first time in 1992 and two years later accepted Prof. Nishida's request that he act as the MWCS secretary-general. In 1999, he founded Japan Tanzania Tours Ltd. (JATA Tours) and started to assist researchers not only as a friend but also as a professional tour agent.

On the 3rd of June 2017, more than 300 people gathered to remember him in Tokyo. There I had a chance to know how extensive and deep a friendship he had cherished, and what kind of man he was. Not only researchers of various disciplines but also diplomats, businesspersons, young students interested in Tanzanian people and culture, etc. regretted his too early passing. His wife, Asami, in her final speech as a representative of the surviving family, revealed that Mr. Nemoto had been determined to retire from his tourist company in November 2018 and concentrate on compiling his lifework about African history. On behalf of MWCS, I would like to express our sin-

cere appreciation for his sharing of our passion for long-term research and conservation of Mahale chimpanzees. We vow to continue our endeavors and pass them on to the next generation.

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<NOTE>

Grooming Hand Clasp by Chimpanzees (*Pan troglodytes schweinfurthii*) in the Issa Valley, Western Tanzania

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INTRODUCTION

Despite over 300 years of combined study of wild chimpanzees, reports of social customs continue to emerge (e.g., social scratch, Nakamura *et al.* 2000), especially given an increased use of remote monitoring of behaviour of unhabituated communities, revealing behaviour like stone throwing that have never before been described (Kühl *et al.* 2016). However, it was the grooming hand clasp (GHC) that was first described as a social custom (McGrew & Tutin 1978), reported in chimpanzees

from the Mahale Mountains National Park (MMNP) in Tanzania nearly a half century ago. The GHC results when two chimpanzees sitting and facing each other clasp their hands above their heads, arms at least partly extended and typically groom each other's underarms. Subsequent reports have described variants of the behaviour (described also as "high arm grooming"—Wrangham *et al.* 2016) and its presence in other wild (Webster *et al.* 2009; McLennan 2012) and captive communities (de Waal & Sere 1997; Leeuwen *et al.* 2012) (see Table 1). Whiten *et al.* (2001) suggest that the behaviour may have originated from branch-clasp grooming (see more in McGrew, 2004) and have been subsequently lost in those chimpanzees where the behaviour has not been observed. One population where this may have occurred lives in Gombe National Park (GNP), about 200 km north of Mahale (Figure 1), where GHC has not been observed in six decades of close observation.

Given the behavioural variability known to exist between even adjacent chimpanzee communities (Leeuwen *et al.* 2012; Luncz *et al.* 2012), the presence of GHC in Mahale, but its absence at Gombe is not surprising, but it does leave us wondering about social transmission of behaviour across western Tanzania. New records describing the GHC, especially in chimpanzees that live between the two parks, would further our understanding about the distribution of cultural traits in a fragmented landscape of

chimpanzee presence. Here we report on the first observations of GHC in Issa Valley chimpanzees.

METHODS

The Issa Valley lies about 85 km east of MMNP and about 135 km southeast of GNP (Figure 1). The home range of the Issa community is over 85 km², and is comprised of a mosaic vegetation dominated by miombo woodland, interspersed with thin strips of gallery forest, seasonally inundated swamps, and rocky outcrops. As of April 2017, the Issa community was only partly habituated, with 14 chimpanzees individually recognisable to researchers. Initial genotyping results suggested a minimum community size of 67 (Rudicell *et al.* 2011).

OBSERVATIONS

On 10 March 2017, researchers heard pant hoots early in the morning and followed the origins of the calling to a miombo woodland, not far from the research station. AP counted three individuals sitting in a *Pterocarpus tinctorius* tree: two were feeding on flowers and one adult female was resting. From further down the mountain pant hoots could be heard. AC then joined AP and together we followed the three individuals into a *Brachystegia bussei* tree, where another four individuals were resting arboreally, thereby comprising a total of seven individuals: two adult males, two sub-adult males, two adult females (one

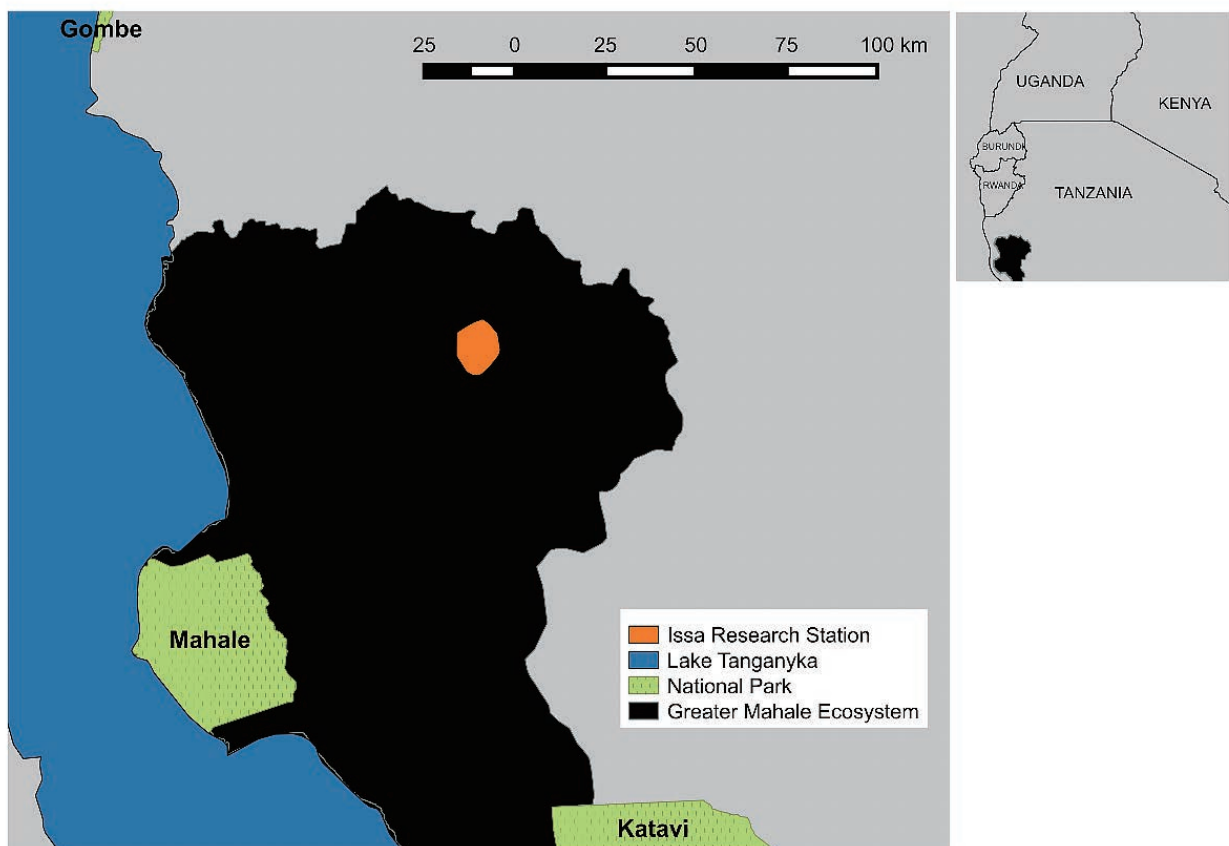


Figure 1. Map of western Tanzania, including the Issa Valley Research Station, Mahale Mountains and Gombe National Parks.



Figure 2. Issa chimpanzees engaged in three types of grooming hand clasp. (a) wrist to palm, (b) palm to palm, and (c) wrist to wrist

with a sexual swelling), and one infant.

With the party comfortable with our presence, we slowly approached to within 20 m, from where we saw two males already engaged in a mutual grooming bout with arms extended and hands touching above them. Over the course of the subsequent 3-hr encounter, we observed the male dyad perform three different hand-clasp configurations (Figure 2a–c), as have been described in previous reports (Leeuwen *et al.* 2012). We did not time each configuration, but with a third individual present and occasionally entering the grooming bout, none of the configurations lasted more than a few minutes, with the entire grooming bout lasting about 20 min.

DISCUSSION

We describe here the first observations of a well-known chimpanzee social custom—the GHC—in a partially habituated community living in the Issa valley, Tanzania. These observations add to our understanding of the patterns of behavioural variation exhibited across the species. As Issa is nearly equidistant between the only two national parks with chimpanzees in Tanzania (GNP and MMNP), insight into the cultural behavioural repertoire at Issa raises the possibility of connectivity to these protected areas. Given the mosaic landscape and variable human population density across the region, it is currently unclear whether there exists chimpanzee population connectivity throughout the ecosystem; integrating socially-transmitted behaviours may help us achieve this.

GHC has now been observed at Mahale (Nakamura 2002) and Issa, less than 100 km to its east; it remains absent in Gombe. This continuity in social custom between the two more southern communities is consistent with current habitat connectivity, as there are both northern

and southern corridors around a large human settlement situated between them (see more in Piel & Stewart, 2014). Our results also support genetic data that show greater similarity between Gombe and Uganda chimpanzees, than Gombe and Mahale (Langergraber *et al.* 2011), and overall, a genetic dissimilarity of Gombe chimpanzees compared to other Tanzanian populations (Inoue *et al.* 2011; Bonnin *et al.* 2015). However, the similarity in SIVcpz viral phylogeny that exists between Gombe and Issa, but not in the southern areas around Mahale (Rudicell *et al.* 2011), suggests either current or recent population connectivity between Issa and Gombe to the north (Piel *et al.* 2013). Accordingly, we would expect these two groups to share cultural behaviours; that they do not, and instead it is Issa and Mahale that share this social custom, supports connectivity between these southern communities. The incongruity between what the viral, genetic and cultural data tell us suggests that we simply do not have the complete picture of chimpanzee distribution and movement across the landscape.

The variation in GHC presence in western Tanzania parallels what McLennan (2012) described for Uganda, with Bulindi, but not Sonso chimpanzees (25 km north) exhibiting the behaviour. He suggested that the absence of GHC in Sonso as well as Gombe and Bossou (see Table 1) reflects the GHC being a “dynamic social custom that... emerges and disappears in local populations repeatedly over time.” Whiten *et al.* (2001) have described “diffusion” as the most parsimonious explanation for the absence of any trait, whereby the trait is exhibited less and less over time, followed by its loss in the community of origin. They suggest that if a replacement alternative exists (at Gombe, for example, branch-clasp grooming), there may be no need to preserve the GHC at Gombe.

Table 1. Study sites and communities where grooming hand clasp has been reported for wild chimpanzees (modified from Webster *et al.* 2009). + indicates the behaviour has been observed; – represents the absence of the behaviour to date.

Sub-species	Country	Community	Hand clasp	Reference
<i>P.t. verus</i>	Guinea	Bossou	–	(Nakamura 2002)
	Senegal	Fongoli	+	(WC McGrew pers. comm. cited in Webster <i>et al.</i> 2009)
	Ivory Coast	Taï (N)	+	(Nakamura 2002)
		Taï (S)	+	(WC McGrew pers. comm. cited in Webster <i>et al.</i> 2009)
<i>P.t. troglodytes</i>	Gabon	Lopé	+	(Nakamura 2002)
	Republic of Congo	Goualougo	+	(WC McGrew pers. comm. cited in Webster <i>et al.</i> 2009)
<i>P.t. schweinfurthii</i>	Tanzania	Mahale (M)	+	(McGrew & Tutin 1978; Nakamura 2002)
		Mahale (K)	+	(McGrew & Tutin 1978; Nakamura 2002)
		Gombe	–	(McGrew & Tutin 1978; Nakamura 2002)
		Issa	+	Current study
	Uganda	Budongo	–	(Nakamura 2002)
		Bulindi	+	(McLennan 2012)
		Kalinzu	+	(Nakamura 2002)
		Kanyanchu	+	(Nakamura 2002)
		Kanyawara	+	(Wrangham <i>et al.</i> 2016)
		Ngogo	+	(Nakamura 2002)
		Semliki	+	(Webster <i>et al.</i> 2009)

As we continue to learn about the Issa chimpanzee behavioural repertoire, we learn not only about overall chimpanzee behavioural variation, but also more specifically obtain critical data to better understand western Tanzanian chimpanzee population connectivity.

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<NOTE>

Two Cases of Chimpanzees Interacting with Dead Animals without Food Consumption at Bulindi, Hoima District, Uganda

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INTRODUCTION

Wild chimpanzees regularly catch and eat mammals and, more rarely, birds throughout sites in Africa (e.g., Goodall 1986; Boesch & Boesch 1989; Kuroda *et al.* 1996; Hosaka *et al.* 2001; Newton-Fisher *et al.* 2002; Watts & Mitani 2002; Pruett & Bertolani 2007; Fujimoto & Shimada 2008; Nakamura & Itoh 2008; Ramirez-Amaya *et al.* 2015). While there are reports of chimpanzees capturing and interacting physically with other animals without eating them, often involving adolescent or immature chimpanzees, such interactions appear to be rare in the wild (e.g., Hirata *et al.* 2001; Carvalho *et al.* 2010; Hockings *et al.* 2012).

At Bulindi, Uganda, chimpanzees have never been observed hunting for meat, despite the presence of suitable prey species (e.g., *Colobus guereza*) and near-continuous monitoring of the chimpanzees since 2012. Here,

we describe two observations of juvenile and adolescent chimpanzees (*Pan troglodytes schweinfurthii*) interacting with dead animals at Bulindi, which were not followed by consumption. We compare these observations to previous reports of physical, non-predatory interactions between wild chimpanzees and sympatric animals at other sites.

STUDY SITE

Bulindi (1°29'N, 31°28'E) is situated midway between the Budongo and Bugoma Central Forest Reserves, in Hoima District, midwestern Uganda. Chimpanzees at Bulindi were first studied in 2006–2008 (McLennan & Hill 2010) and subsequently from 2012 to the present. Their home range comprises degraded riverine forest fragments amid villages, farmland and roads (for details of the study site see McLennan & Asiimwe 2016; McLennan & Ganzhorn 2017). The observations described here were recorded *ad libitum* by Tom Sabiiti (T.S.), a long-term field assistant at Bulindi, during July–August 2016. During this time, the community comprised 21 members: 2 adult males, 6 adult females, 1 adolescent male, 1 adolescent female, and 11 juveniles and infants. The chimpanzees are wary of villagers but are habituated to the authors.

BEHAVIOURAL OBSERVATIONS

Interaction with a helmeted guineafowl (Numida meleagris)

On the 4th July 2016, at 08:30 h, T.S. located a party of 18 chimpanzees. Adolescent male MO (c. 11 years old) was sitting on a branch in a *Pseudospondias microcarpa* tree, inspecting the feathers of a guineafowl, which was already dead; the corpse appeared fresh. A juvenile male (JK; c. 8 years old) was sitting c. 3 m away, looking carefully at MO's actions. Similarly, MO often looked at JK. MO inspected the bird (including touching and smelling it), holding it up by one leg and making the body turn. He showed no aggressive behaviour towards it (e.g. swinging it or displaying with it). He held the bird for 35 min. Throughout this time, JK remained close by. Then, MO dropped the corpse to the ground (from c. 5 m height). JK immediately climbed down to retrieve the dead bird, and climbed up again with it. JK began to inspect the bird, touching the feathers and eyes of the bird. For 45 min, JK kept hold of the bird before dropping it to the ground. Shortly afterwards, he made a day nest and rested. During the episode no other chimpanzees in the party, including other youngsters, showed any apparent interest in the bird or in the behaviour of MO and JK, and none went to collect the corpse after JK dropped it. Neither MO nor JK were observed to eat any part of the bird. The body appeared intact throughout observations with no blood or injury visible.

Interaction with a western tree hyrax (Dendrohyrax dorsalis)

On the 17th August 2016, at 08:09 h, T.S. located a party of 16 chimpanzees in *Pseudospondias microcarpa* trees. JK was seated on a branch holding a dead tree hyrax. Although tree hyraxes are mostly nocturnal, T.S. had